

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference P 20012 PC 00 | | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
| International application No, PCT/NO2003/000123 | International filing date (day/month/year) 14.04.2003 | Priority date (day/month/year) 19.04.2002 | |
| International Patent Classification (IPC) or national classification and IPC E21B 23/00, E21B 33/068 | | | |
| Applicant Maritime Well Service AS et al | | | |

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

| | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

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| Date of submission of the demand 29.10.2003 | Date of completion of this report 22.06.2004 |
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/NO2003/000123

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 12 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1 - 2 received by this Authority on 06.05.2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 9 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-------------|-----|
| Novelty (N) | Claims | <u>1-10</u> | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | <u>1-10</u> | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | <u>1-10</u> | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

The invention relates to a device for a tool string for insertion in a well, the tool string being provided with a brake nose at its leading tip. It is intended to avoid damage to the well safety valve, should the tool string be dropped accidentally.

The cited document EP 0658683 A1 discloses a shock absorber for a tube string, intended to avoid impact damage when the downward momentum is killed as the equipment is landed. The shock absorber is situated at the trailing end of the tool string. The present invention differs from the cited prior art in the problem to be solved (avoid damage to equipment if tool string is dropped) as well as in the solution (brake nose at the leading tip of the tool string). Also, there are no valves are required, as in the prior art.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed device for a tool string. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-10 is novel and is considered to involve an inventive step.

The invention is industrially applicable.

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 4 refers to "one or more of the preceding claims" and the characterising portion contains the features "the bores (112, 114)". The bores 112, 114 are first mentioned in claim 3, so claim 4 can only refer back to this claim.

Claims 5, 6 and 8 comprises similar errors.

The term "bayonet connector" (22, 24, 30, 34, 38, 116) does not seem correct. A bayonet connector is connected and disconnected by a twisting movement combined with a linear movement. This seems not to be the case with the "bayonet connector" in the present application.

The "tool lock (46)" in claim 8 is named "tool lock ring (46)" in the description.

C l a i m s

1. Device for a tool string (2) for insertion in a well,
c h a r a c t e r i s e d i n that the tool string (2)
is provided with a brake nose (1) at its leading tip.
- 5 2. Device according to claim 1, c h a r a c t e r i s e d
i n that a landing sleeve (100) being arranged to re-
ceive a brake nose (1), is connected in a locking manner
to a well tubing (98), preferably immediately above a
safety valve (102) of the well, and that the landing
10 sleeve (100) may comprise a brake tubing (108).
3. Device according to one or more of the preceding claims,
c h a r a c t e r i s e d i n that a through-going pipe
opening of the landing sleeve (100) and/or the brake tub-
ing (108) comprises an upper bore (112) and a lower bore
15 (114), and that the diameter of the lower bore (114) dif-
fers from the diameter of the upper bore (112).
4. Device according to one or more of the preceding claims,
c h a r a c t e r i s e d i n that the brake nose is
provided with a brake spindle (12) arranged to be moved
20 into the bores (112, 114).
5. Device according to one or more of the preceding claims,
c h a r a c t e r i s e d i n that the brake spindle
(12) externally is provided with a first labyrinth (14)
and a second labyrinth (16), and that the labyrinths
25 (14,16) together with the corresponding bores (112, 114)
constitute a labyrinth seals for a confined annular space

(118) between the brake spindle (12) and the brake tubing (108).

6. Device according to one or more of the preceding claims, characterised in that the brake nose (1) is arranged to be locked to the brake tubing (108) by means of a releasable bayonet connector (22, 24, 30, 34, 38, 116).
7. Device according to one or more of the preceding claims, characterised in that a tool nose (8) connected to the tool string (2) is axially connected, in a one-way releasable manner, to the brake nose (1).
8. Device according to one or more of the preceding claims, characterised in that the tool nose (8) in its locked position is secured in the brake nose (1) by a tool lock (46).
9. Device according to one or more of the preceding claims, characterised in that the tool lock (46) is blocked against release by means of an axially moveable locking slide (40).
10. Device according to one or more of the preceding claims, characterised in that the tool lock (46) is connected, in a one-way moveable manner, to a piston (52).